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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,894	03/04/2004	Hisanori Yokura	01-603	4806
23400	7590	06/13/2005	EXAMINER	
POSZ LAW GROUP, PLC 12040 SOUTH LAKES DRIVE SUITE 101 RESTON, VA 20191			ROGERS, DAVID A	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/791,894

Applicant(s)

YOKURA ET AL.

Examiner

David A. Rogers

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040304.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: Non Final Rejection.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - a. The specification and claims needs to replace --silicon gel-- with --silicone gel--.
 - b. Page 7, line 17 states that the electrodes are formed on the semiconductor substrate. However, the remaining disclosure and figures show that the electrodes are formed on the insulating layer.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over International Patent Application Publication WO 01/42776A1 to Sensirion AG (Sensirion) in view of International Patent Application Publication WO 01/42775A1 to LG Electronics, Inc. (LG) and United States Patent Application Publication 2001/0015089 to Kleinhans *et al.*

Sensirion teaches a capacitive humidity sensor comprising (a) a substrate (reference item 1); (b) an insulating layer (reference item 7); (c) a first

electrode (reference item 2); (d) a second electrode (reference item 3); (e) a protective layer (reference item 8'); and (f) a humidity sensing layer (reference item 4). Sensirion teaches that the substrate is silicon. Sensirion also teaches that (a) the insulating layer is a silicon oxide; (b) the electrodes are metal; (c) the protective layer can be silicon oxide or silicon nitride; and (d) the humidity sensing layer is a polymer that absorbs humidity. As seen in figure 1 the electrodes (reference items 2 and 3) are formed as comb-toothed elements connected to respective common electrode portions. The comb-toothed elements are alternately arranged. The electrodes are formed on the insulating layer (reference item 7). As seen in figure 3 the protective layer (reference item 8') is formed such that it covers the electrodes and the gap between the electrodes. Sensirion teaches the claimed invention except for the use of a moisture-permeable layer formed on the humidity sensing layer.

LG discloses a substrate (reference item 6) upon which is an insulating layer (reference item 7), an electrode pair (reference item 8), a moisture sensing film (reference item 9). The substrate is silicon. The insulating film is formed of SiO_2 , Si_3N_4 , or SiO_xN_y . The humidity sensing layer is formed of a polyimide, which is a commonly used polymer for humidity sensors. Polyimide exhibits excellent thermal and hygroscopic properties. See page 2, paragraphs 0032-0034. The electrode pair is formed as forked, interlocking members as seen in figure 2A.

Kleinhans *et al.* teaches a humidity sensor (reference item 1). This sensor comprises (a) a substrate (reference item 2); (b) a dielectric capacitor structure (reference item 3); and (c) a silicone or fluorine gel (reference item 4) covering the sensor. Kleinhans *et al.* teaches that the protective gel is permeable to moisture, but keeps contaminants away from the humidity sensing layer. See page 1, paragraph 0009-0014.

The applicant teaches that their invention uses a polyimide polymer as the humidity sensing layer along with a silicone gel coating. This is the same as taught by the prior art of Sensirion in view of LG and Kleinhans *et al.* Accordingly, the silicone gel layer will have a higher dielectric property than the polyimide layer.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Sensirion with the teachings of LG and Kleinhans *et al.* to provide a humidity sensor comprising a silicone/fluorine gel coating over a polyimide layer (acting as a humidity sensing layer) in order to further protect the sensor and prolong its useful life.


Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


02 June 2005


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800